To Tom T.
then file
ACT/047/002

GEOKINETICS INC. shale oil development and production

582 north vernal avenue • p.o. box 1168 • vernal, utah 84078 • telephone (801) 789-0806

JIM

JAN 3 1 1983

January 25, 1983

Mr. James W. Smith, Jr.
Division of Oil, Gas and Mining
4241 State Office Bldg.
Salt Lake City, UT 84114

Dear Mr. Smith:

Enclosed is Geokinetics' Operation and Progress Report at Experimental Site #1 for 1982. The report includes updated maps and a description of land rehabilitation work performed by Geokinetics in 1982.

If you have any questions in regard to this report, please feel free to contact me at 801-646-3401.

Sincerely,

William L. Sharrer

William L. Sharrer
Environmental Engineer

WLS/ks

Enclosure

RECEIVED
JAN 31 1983
DIVISION OF
OIL, GAS & MINING

MR Form 3
(Revised 1982)
Page 1 of 2

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES AND ENERGY
DIVISION OF OIL, GAS AND MINING
4241 State Office Building
Salt Lake City, Utah 84114

ANNUAL OPERATIONS AND PROGRESS REPORT

19 82

(To be filed for each mining operation at the end of each calendar year.)

OPERATOR: Geokinetics Inc.

ADDRESS: P.O. Box 1168
Vernal, UT 84078

REPRESENTATIVE: Rusty Lundberg

MINE NAME: Experimental Site #1

PERMIT #: Act/047/002

Sec. 2 T. 145 R. 22E SLBM

DATE OF APPROVAL: March 23,1979

(1) Section 40-8-15 and Rule M-8 of the Utah Mined Land Reclamation Act, require each operator to include with this report an up-dated map and plan prepared in accordance with Rule M-3, providing a detailed status of all mining and reclamation activities which have occurred during the past year.

(2) The gross amount of materials moved during the year for this mining operation was: No material was mined. Vegetation was disturbed on approximately 3.5 acres during 1982. An updated map depicting such disturbance is included with this report (Figure 1). (See note below).

The disposition of each type of material was:

Note: Geokinetics utilized an in-situ process to recover oil from oil shale. Therefore, no material is actually moved from one locality to another. Land disturbance is limited to vegetation removal on true in-situ retort surfaces and adjacent access and haul roads.

(3) Status of reclamation work.*

Month	Number of acres	Type of Work Performed	Results (Revegetation Success)
January			
February			
March			
April	Retort #24 (1.5ac)	clean-up, regrading, recontouring, soil stabilization	See enclosed summary
May			
June			
July			
August	Retort #25 (1.5ac)	clean-up, regrading, recontouring, soil stabilization	As yet, has not been revegetated
September			
October	Retorts #15, 23 & other(1 ac)	clean-up,regrading, recontouring, soil stabilization	As yet has not been revegetated
November			
December			

*The monthly status of reclamation work should include such items as clean-up, regrading, recontouring, soil preparation, seeding, etc., and may be outlined on a separate sheet if necessary.

A brief summary of reclamation work performed during 1982, and additional enclosures describing furture plans are included with this report.

SUMMARY OF RECLAMATION WORK - 1982

During 1982, approximately 3.5 acres were disturbed as part of Geokinetics' research and development operation. The area of disturbance consists of one 2 acre retort with approximately 0.5 acres of access area, and 1 acre of land for storage of crude shale oil (Figure 1).

Reclamation work during 1982 consisted of the clean-up (equipment removal), regrading/recontouring, and soil stabilization of Retorts 15, 21, 24 and 25 (Figure 2). In addition, cut and fill slopes along the main access way were regraded and stabilized. These areas (approx. 4 acres) will be revegetated during the spring and fall of 1983.

FIGURE 1
AREAS OF DISTURBANCE DURING 1982

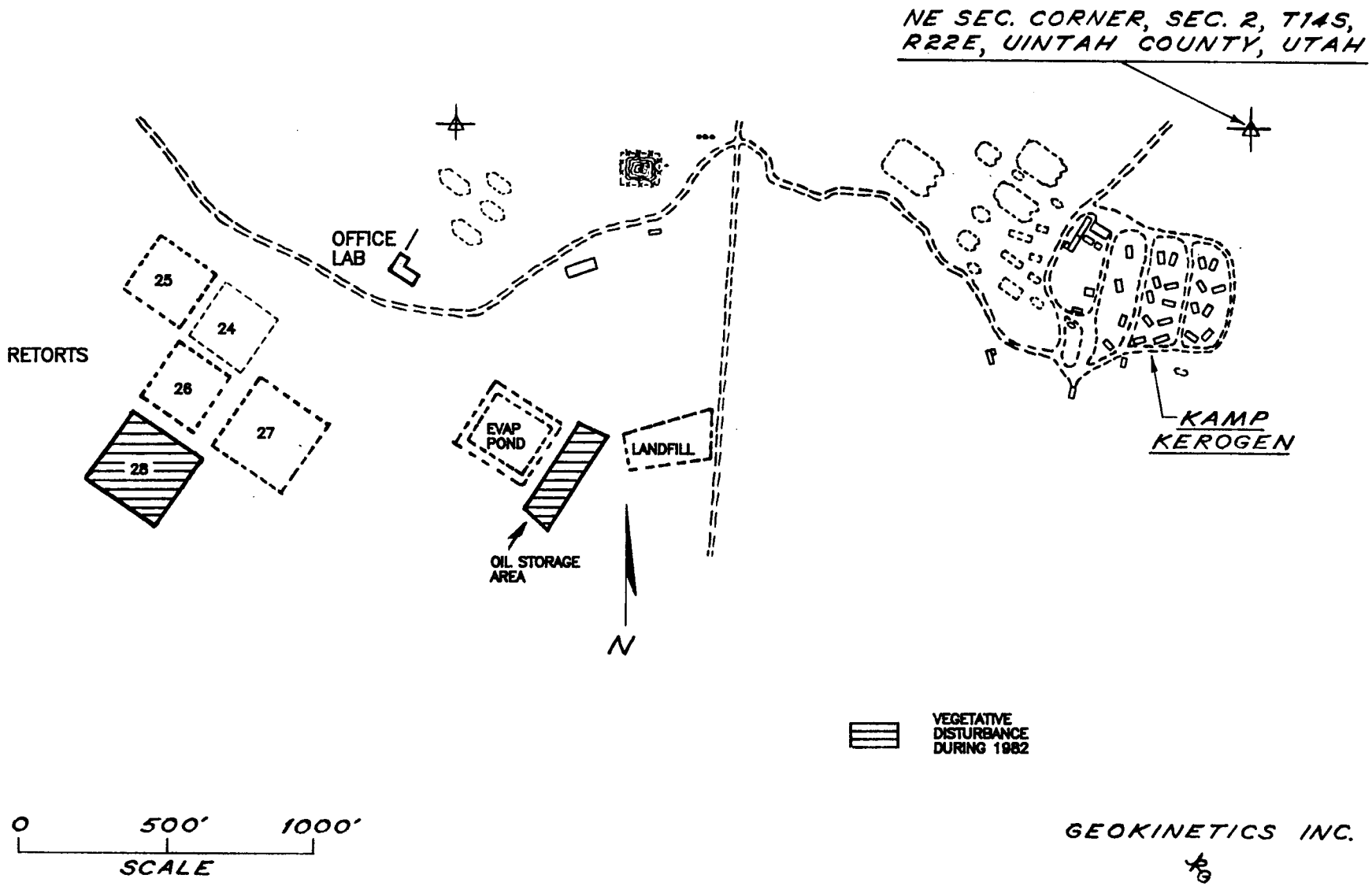
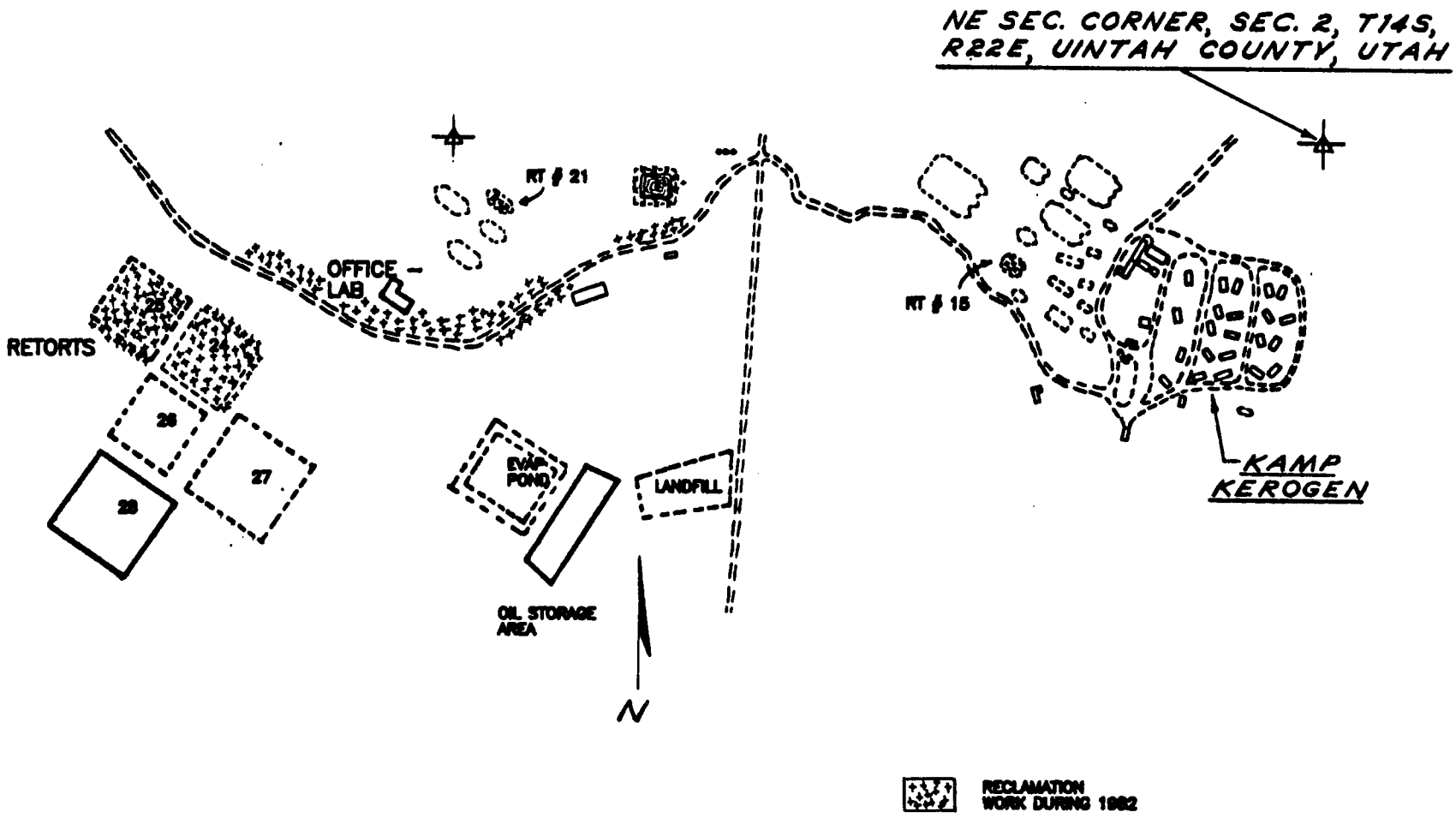


FIGURE 2
AREAS OF RECLAMATION WORK DURING 1982



U.S. FOREST SERVICE PLANT SURVIVAL STUDIES

The cooperative agreement with the U.S. Forest Service Shrub Science Laboratory continued during 1982 with survival and growth measurement of transplants taken during May and September.

The plant survival study is a copperative effort between Geokinetics and the USFS Intermountain Forest and Range Experiment Station, Provo, Utah. The main objective of the study is to provide information on the adaptability of several species of plants (trees, shrubs, forbs and grasses) established by transplanting container-grown planting stock. This information will be beneficial for the development of a successful and economically viable revegetation plan on burned in-situ retorts. Results from the study will be published during 1984 following the 3rd year of growth.

PROPOSED REVEGETATION PLANS DURING 1983

Reclamation work will continue during 1983 with the revegetation of several burned retorts.

A tentative agreement between Geokinetics and the U.S. Forest Service Forestry Science Laboratory (Logan) has been reached to expand the cooperative agreement. A proposed plan to evaluate revegetation treatments of known utility on a burned in-situ retort during spring (w/irrigation) and fall will be tested. A copy of the research prospectus has been enclosed.

12/1/82

RESEARCH PROSPECTUS
to
Geokinetics, Inc.

by

Intermountain Forest and Range Experiment Station

THE PROBLEM

Geokinetics, Inc. extracts shale oil by the "Lofreco" in-situ process. After each retort is shut down the heat retained in the retort takes several months to dissipate to levels required for successful revegetation. However, it is desirable to reclaim the retort area as soon as practical. The problems to be addressed are retort heat, soil depth, soil properties, soil fertility, precipitation variability, site preparation, and the use of spring seeding with irrigation versus fall seeding without irrigation.

STUDY SITE

South of Vernal, Utah at the Geokinetics, Inc., #24 retort, about 1 acre. Average annual precipitation is approximately 12.7".

OBJECTIVES

1. Evaluate revegetation treatments of known utility at the Geokinetics site.

2. Evaluate spring seedings with irrigation supplemental water versus fall seeding without irrigation.

3. Transfer revegetation technology to Geokinetics, Inc. reclamation staff.

METHODS

1 site preparation treatment
1 fertilizer treatment (based on soils analysis)
3 mulch treatments, none, straw, wood fiber
2 grass mixtures, grass only, grass-shrub-forb mix (species to be selected later)
2 seeding dates, April, 1983 and November, 1983. April seeding to be irrigated on an as-needed basis.

G = grass seed, S = shrub seed, F = forb seed

Treatment codes: #1, G-S-F with straw
#2, G-S-F with wood fiber
#3, G-S-F with none, surface gouging maybe used if equipment is available.
#4, G with straw
#5, G with wood fiber

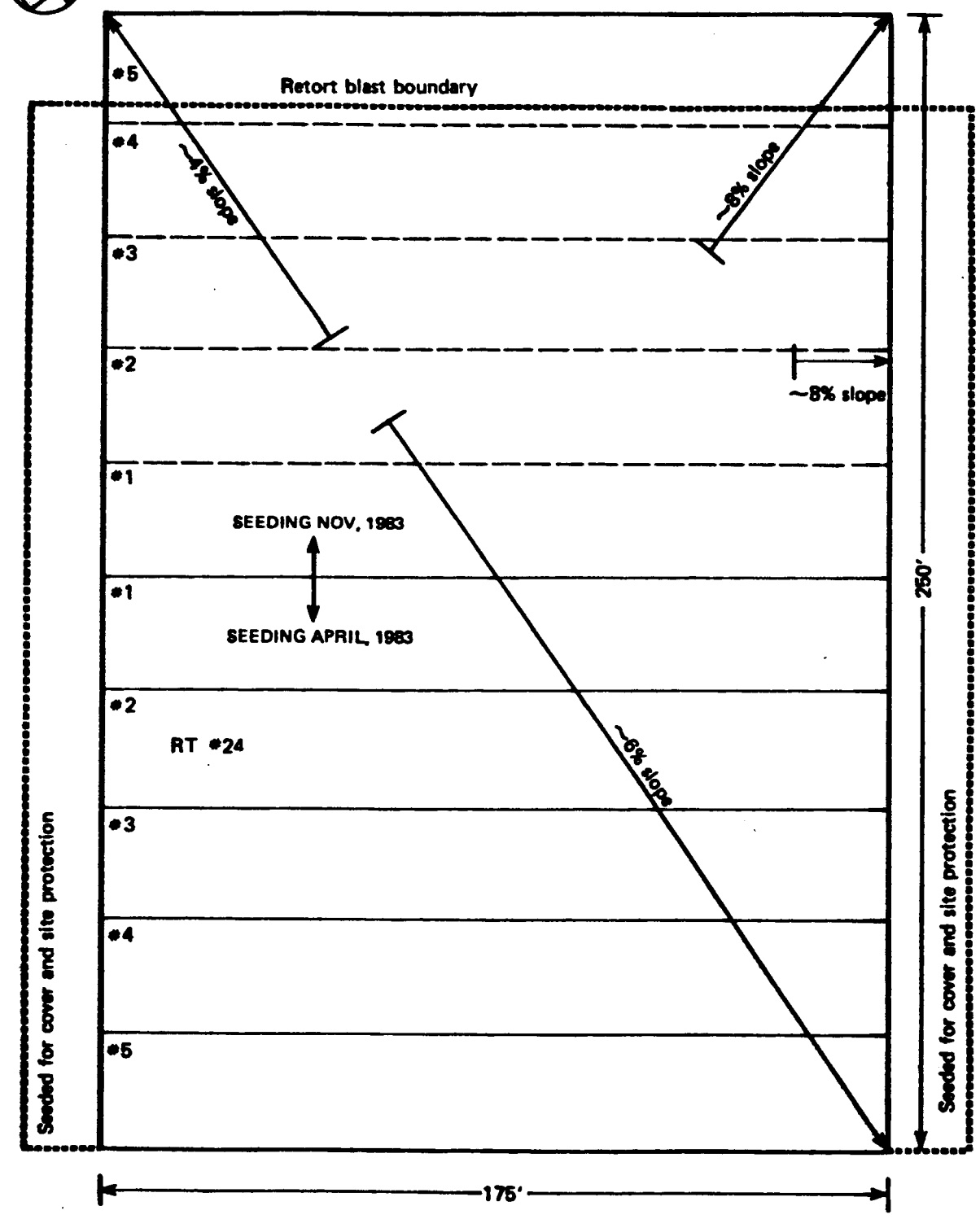
Equipment: tractor, harrow, straw blower, straw crimper, Brillion seeder, hydro-mulcher

COOPERATION

Cooperation will be detailed in a formal cooperative agreement. Cooperation can be terminated by either party at any time upon 30 days notice. In general, Geokinetics will safeguard the site and permit access. Intermountain Station will conduct the research and prepare a report. Geokinetics will irrigate plots as required during the first growing season only.

DURATION

Three years minimum; an additional 2 years for monitoring would be desirable.



Approximate slope and proposed study plot dimensions for retort #24.